



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,431	07/12/2001	Shigeru Fujita	9799107-0006	8311

26263 7590 09/10/2004

SONNENSCHN NATH & ROSENTHAL LLP
P.O. BOX 061080
WACKER DRIVE STATION, SEARS TOWER
CHICAGO, IL 60606-1080

EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
----------	--------------

1746

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,431

Applicant(s)

FUJITA ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 15, 24-34 and 37-43 is/are rejected.
- 7) ☒ Claim(s) 7, 13, 14, 16-23, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-28 and newly added claims 29-43. Claims 1-6, 8-12, 15, and 24-28 remain rejected for substantially the reasons of record, and claims 29-34 and 37-43 are newly rejected for these reasons. Claims 7, 13, 14, 16-23, 35, and 36 are objected to as containing allowable subject matter. Accordingly, this action is made final.

Terminal Disclaimer

2. The terminal disclaimers filed on April 9, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Serial Nos. 09/954,806 and 10/126,895 have been reviewed and are accepted. The terminal disclaimers have been recorded.

Claim Suggestions

3. In claim 42, the limitation "the improvement light metal" is grammatically awkward. Appropriate correction is suggested but not required.

Claim Objections

4. Claim 35 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 7. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

5. Claims 1-6, 8-12, 15, 24-34 and 37-43 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-31534. Regarding claims 1 and 24, the reference is directed to a secondary battery comprising a negative electrode, a positive electrode, and an electrolyte. Regarding claim 11, the negative electrode contains a carbonaceous material (i.e., graphite) (see abstract). Regarding claim 8, the charging capacity of the graphite would inherently be at least 150 mAh/g. Regarding claim 9, the thickness of the negative electrode mixture layer is 0.19 mm (190 microns) (see paragraph 19 of the translation). Regarding claim 10, the negative electrode material is 90 wt% of the negative electrode (see paragraph 19). Regarding claim 12, the positive electrode comprises a lithium transition metal oxide (see abstract). Regarding claim 15, the electrolyte comprises ethylene carbonate and propylene carbonate (see paragraph 15). Regarding claims 1, 2, 6, 24, 25, and 26, as disclosed in paragraph 9, when the porosity is lower than 30%, lithium precipitates on the negative active material as well as being intercalated therein (an example of such low porosity is shown in battery "Y" in Table 2). Thus, as recited in

claim 24, the capacity of the negative electrode may be expressed as the sum of the intercalation capacity and the precipitation capacity. Regarding the recitation in claims 1 and 3 that the lithium precipitates in a state where an open circuit voltage (0-4.2V) is lower than an overcharge voltage, this limitation is inherent in the reference. Note the teaching in paragraph 9 that lithium precipitates during normal operation of the battery when the porosity of the negative electrode is lower than 30%. Hence, the lithium would inherently begin to precipitate when the open circuit voltage of the battery is lower than the overcharge voltage. Regarding the limitations in claims 29 and 40 that the charge capacity of the negative electrode due to the reversible occlusion of light metal ions is smaller than the charge capacity of the positive electrode, this limitation would also be inherent in the reference. Regarding claims 4, 5, 27, and 28, these limitations recited in these claims do not have to be accorded patentable weight because they do not further limit the structure of the claimed battery. The claims merely recite the various lithium metal and lithium ion peaks that are present when the negative electrode material is measured by a nuclear magnetic resonance spectroscopy method. As this method does not limit the structure of the battery, it does not have to be accorded patentable weight. However, such peaks would be inherent even if such a method were to be employed.

Thus, the instant claims are anticipated.

Response to Arguments

6. Applicant's arguments filed April 9, 2004 have been fully considered but they are not persuasive insofar as they are applicable to the present rejection. Applicants note that the JP '534 reference is concerned with preventing the deposition of metallic lithium on the negative electrode. While the Examiner acknowledges that the invention of JP '534 indeed reduces such Li precipitation by specifying a negative electrode porosity of 30-45%, the reference discloses a battery (cell "Y" in Table 2) having a porosity of 25% that would inherently both occlude and precipitate lithium, as set forth in the above rejection. A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. The question whether a reference "teaches away" from the invention is inapplicable to an anticipation analysis. *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998). See MPEP §2131.05. As such, by virtue of disclosing battery "Y" as a comparative example, the JP '534 reference anticipates the subject matter of claims 1-6, 8-12, 15, 24-34 and 37-43 of the present application.

Allowable Subject Matter

7. Claims 7, 13, 14, 16-23, 35, and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:

Each of the instant claims recites a feature that is not inherently or expressly disclosed by JP '534, the closest prior art. An artisan seeking to modify the battery of JP '534 to include the features recited in the instant claims would be led away from the feature in claim 1 that light metal precipitates on the negative electrode. JP '534 contains several instances of "teaching away" from such precipitation, e.g., in paragraphs, 4, 6, and 9. Accordingly, as the disclosure of JP '534 would lead the artisan away from the instantly claimed subject matter, the aforementioned claims contain allowable subject matter.

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1746

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jonathan Crepeau
Patent Examiner
Art Unit 1746
September 6, 2004